



D12V0M1U2S9

12V UNIDIRECTIONAL TVS DIODE

Product Summary

V _{BR min}	I _{pp max}	C _{in typ}
13V	4A	20pF

Description

This new generation TVS is designed to protect sensitive electronics from the damage due to ESD. The combination of small size and high ESD surge capability makes it ideal for use in portable applications such as cellular phones, digital cameras and MP3 players.

Applications

- Cellular Handsets
- Portable Electronics
- · Computers and Peripheral

SOD923



Top View

Features

- Provides ESD Protection per IEC 61000-4-2 Standard:
 Air ±30kV, Contact ±30kV
- 1 Channel of ESD Protection
- Low Channel Input Capacitance
- Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)
- Halogen and Antimony Free. "Green" Device (Note 3)

Mechanical Data

- Case: SOD923
- Case Material: Molded Plastic, "Green" Molding Compound.
 UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish annealed over Alloy 42 leadframe (Lead Free Plating). Solderable per MIL-STD-202, Method 208@3
- Weight: 0.001 grams (approximate)



Device Schematic

Ordering Information (Note 4)

Product	Compliance	Marking	Reel Size (inches)	Tape Width (mm)	Quantity per Reel
D12V0M1U2S9-7	Standard	TM	7	8	10,000/Tape & Reel

Notes:

- 1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
- See http://www.diodes.com/quality/lead_free.html for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
- 3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
- 4. For packaging details, go to our website at http://www.diodes.com/products/packages.html.

Marking Information



TM = Product Type Marking Code Line Denotes Pin 1 or Cathode Side

Maximum Ratings (@ $T_A = +25$ °C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit	Conditions
Peak Pulse Power Dissipation	P_PP	100	W	8/20µs, Figure 3
Peak Pulse Current	Ipp	4	Α	8/20µs, Figure 3
ESD Protection – Contact Discharge	V _{ESD_Contact}	±30	kV	IEC 61000-4-2 Standard
ESD Protection – Air Discharge	V_{ESD_Air}	±30	kV	IEC 61000-4-2 Standard



Thermal Characteristics

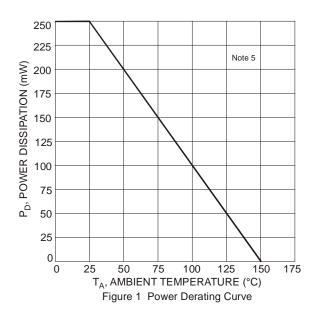
Characteristic	Symbol	Value	Unit
Package Power Dissipation (Note 5)	P_{D}	250	mW
Thermal Resistance, Junction to Ambient (Note 5)	$R_{ hetaJA}$	500	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-65 to +150	°C

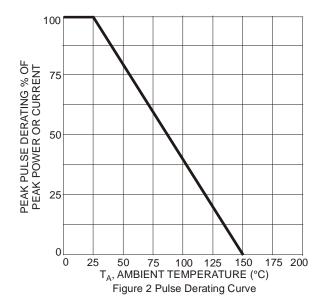
Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Тур	Max	Unit	Test Conditions
Reverse Standoff Voltage	V_{RWM}	_	_	12	V	_
Channel Leakage Current (Note 6)	I _{RM}	_	1	100	nA	V _{RWM} = 12V
Clamping Voltage, IEC 61000-4-5	V _{CL}	_	_	20	V	$I_{PP} = 1A$, $tp = 8/20\mu S$
		_	_	25		$I_{PP} = 4A$, $tp = 8/20\mu S$
Breakdown Voltage	V_{BR}	13	_	_	V	I _R = 1mA
Channel Input Capacitance	C _T	_	20	26	pF	$V_R = 0V$, $f = 1MHz$

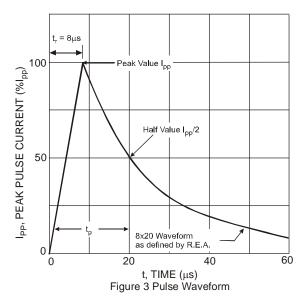
Notes:

- 5. Device mounted on FR-4 PCB pad layout (2oz copper) as shown on Diodes, Inc. suggested pad layout AP02001, which can be found on our website at http://www.diodes.com.
- 6. Short duration pulse test used to minimize self-heating effect.









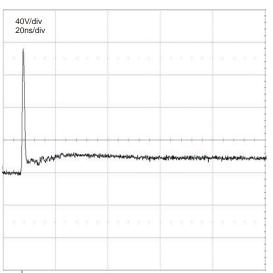


Figure 5 ESD Response to IEC 61000-4-2 (+8kV Contact Discharge)

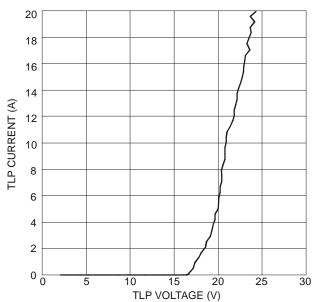
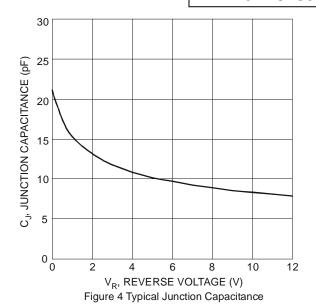


Figure 7 Transmission Line Pulsing (TLP) Current vs. Voltage



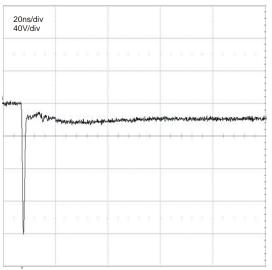
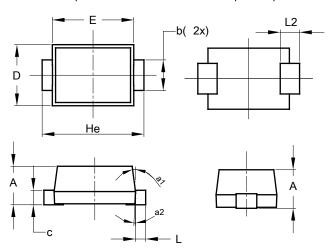


Figure 6 ESD Response to IEC 61000-4-2 (-8kV Contact Discharge)



Package Outline Dimensions

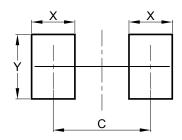
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for latest version.



SOD923						
(0.	(0.3mm Lead Width)					
Dim	Min	Max	Тур			
Α	0.34	0.40	0.37			
b	0.25	0.35	0.30			
С	0.05	0.15	0.10			
D	0.55	0.65	0.60			
E	0.75	0.85	0.80			
He	0.95	1.05	1.00			
L	0.05	0.15	0.10			
L2	0.190 REF					
a1	0°	8°	7°			
a2	2°	4°	3°			
All Dimensions in mm						

Suggested Pad Layout

Please see AP02001 at http://www.diodes.com/datasheets/ap02001.pdf for latest version.



Dimensions	Value		
Dimensions	(in mm)		
С	0.900		
Х	0.400		
Υ	0.600		



IMPORTANT NOTICE

DIODES INCORPORATED MAKES NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, WITH REGARDS TO THIS DOCUMENT, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE (AND THEIR EQUIVALENTS UNDER THE LAWS OF ANY JURISDICTION).

Diodes Incorporated and its subsidiaries reserve the right to make modifications, enhancements, improvements, corrections or other changes without further notice to this document and any product described herein. Diodes Incorporated does not assume any liability arising out of the application or use of this document or any product described herein; neither does Diodes Incorporated convey any license under its patent or trademark rights, nor the rights of others. Any Customer or user of this document or products described herein in such applications shall assume all risks of such use and will agree to hold Diodes Incorporated and all the companies whose products are represented on Diodes Incorporated website, harmless against all damages.

Diodes Incorporated does not warrant or accept any liability whatsoever in respect of any products purchased through unauthorized sales channel. Should Customers purchase or use Diodes Incorporated products for any unintended or unauthorized application, Customers shall indemnify and hold Diodes Incorporated and its representatives harmless against all claims, damages, expenses, and attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized application.

Products described herein may be covered by one or more United States, international or foreign patents pending. Product names and markings noted herein may also be covered by one or more United States, international or foreign trademarks.

This document is written in English but may be translated into multiple languages for reference. Only the English version of this document is the final and determinative format released by Diodes Incorporated.

LIFE SUPPORT

Diodes Incorporated products are specifically not authorized for use as critical components in life support devices or systems without the express written approval of the Chief Executive Officer of Diodes Incorporated. As used herein:

- A. Life support devices or systems are devices or systems which:
 - 1. are intended to implant into the body, or
 - 2. support or sustain life and whose failure to perform when properly used in accordance with instructions for use provided in the labeling can be reasonably expected to result in significant injury to the user.
- B. A critical component is any component in a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or to affect its safety or effectiveness.

Customers represent that they have all necessary expertise in the safety and regulatory ramifications of their life support devices or systems, and acknowledge and agree that they are solely responsible for all legal, regulatory and safety-related requirements concerning their products and any use of Diodes Incorporated products in such safety-critical, life support devices or systems, notwithstanding any devices- or systems-related information or support that may be provided by Diodes Incorporated. Further, Customers must fully indemnify Diodes Incorporated and its representatives against any damages arising out of the use of Diodes Incorporated products in such safety-critical, life support devices or systems.

Copyright © 2014, Diodes Incorporated

www.diodes.com

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Diodes Incorporated:

D12V0M1U2S9-7